

Led

Introduktion af kæbeled

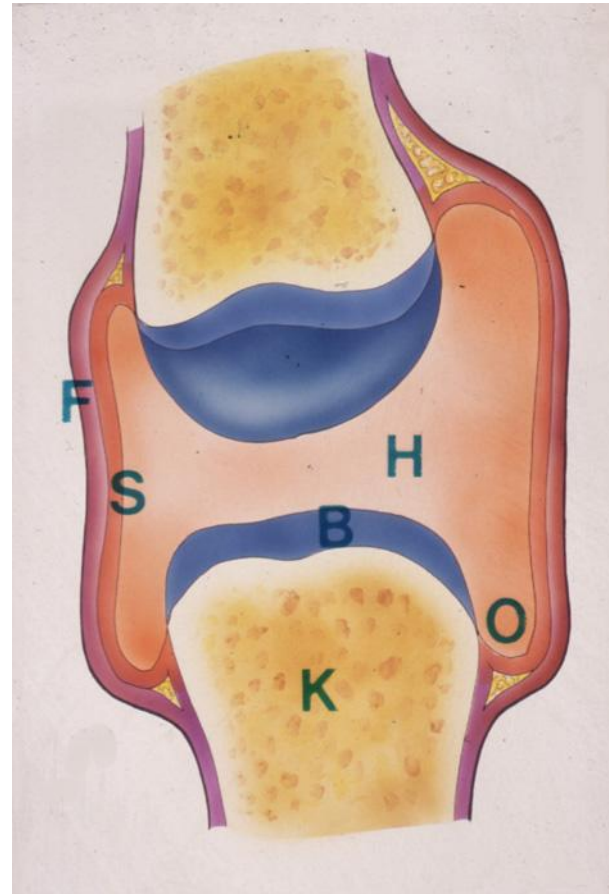
16. sep 2025

LED

- UÆGTE
- ÆGTE

ÆGTE LED

- ledhule
- ledflader



UÆGTE LED

- ingen ledhule
- lille bevægelighed

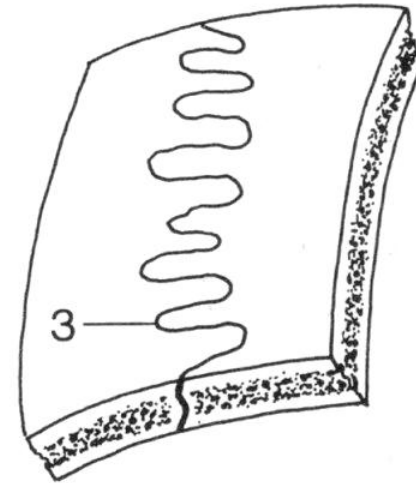


FIG. 2

UÆGTE LED

- SYNDESMOSER
 - knogler holdes sammen af bindevæv

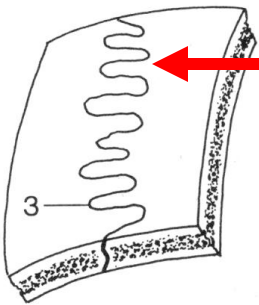
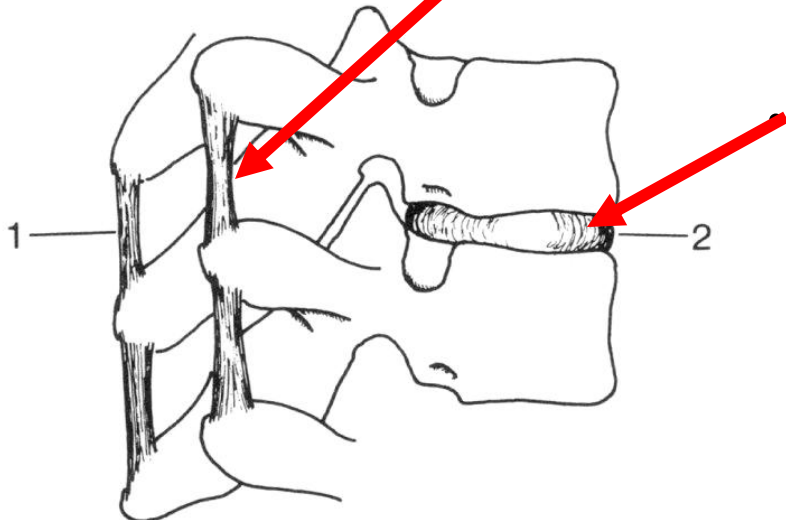


FIG. 2

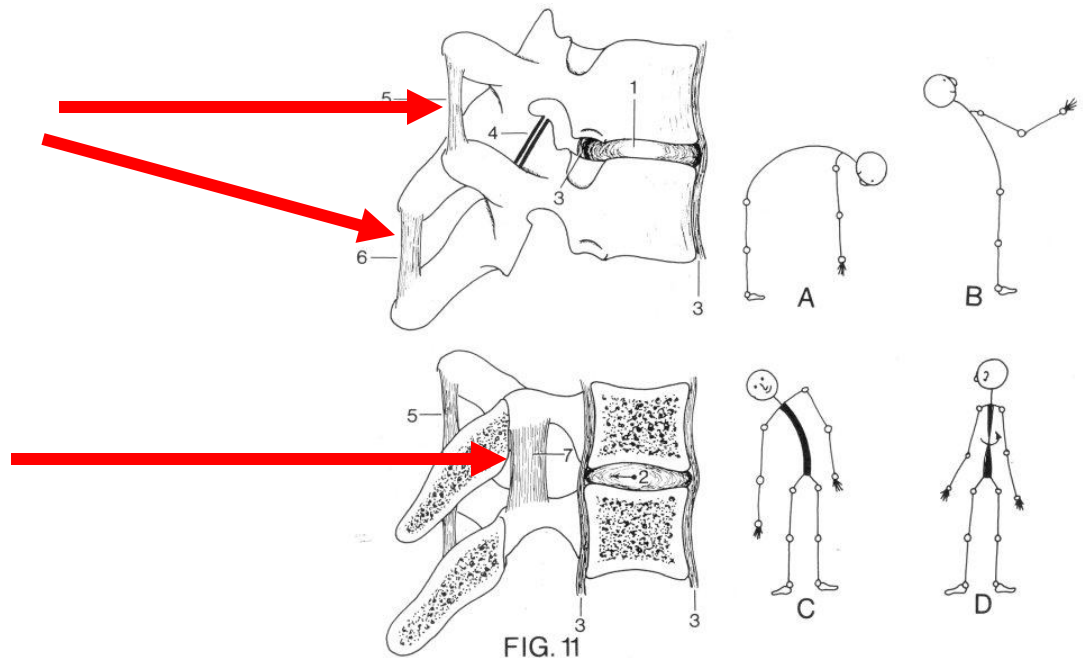


SYNCHONDROSER

- knogler holdes sammen af brusk

UÆGTE LED

- SYNDESMOSER
(membraner eller ledbånd)
 - Fibrøse
 - fibrillært, kollagent bindevæv
 - fx mellem tvær- og torntappe
 - Elastiske
 - elastisk bindevæv
 - fx på hvirvelbuer



UÆGTE LED

- eksempel på savtakkede fibrøse syndesmoser
- *sutura serratae*

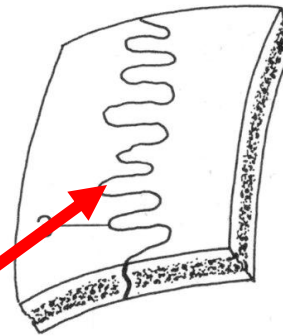


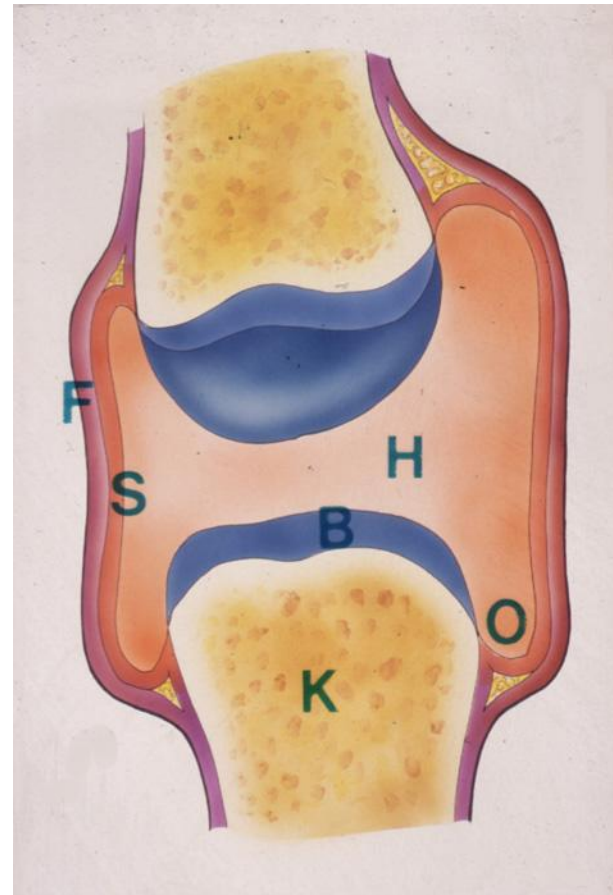
FIG. 2

ÆGTE LED

De ægte led har:

- LEDBRUSK
- LEDKAPSEL
- OMSLAGSFOLD O
- LEDHULE H

B
FS



ÆGTE LED

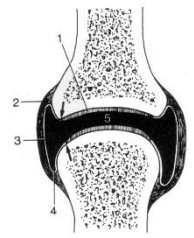
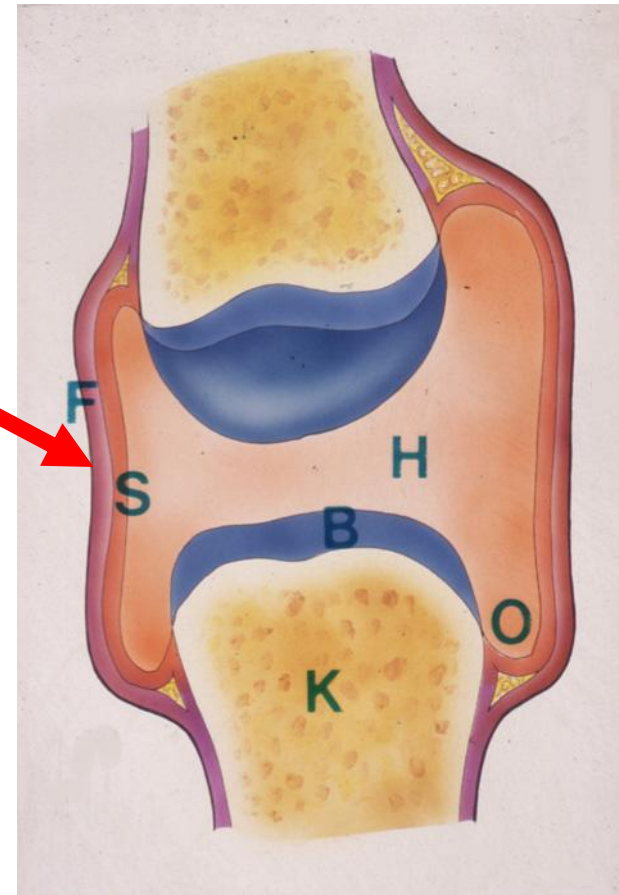


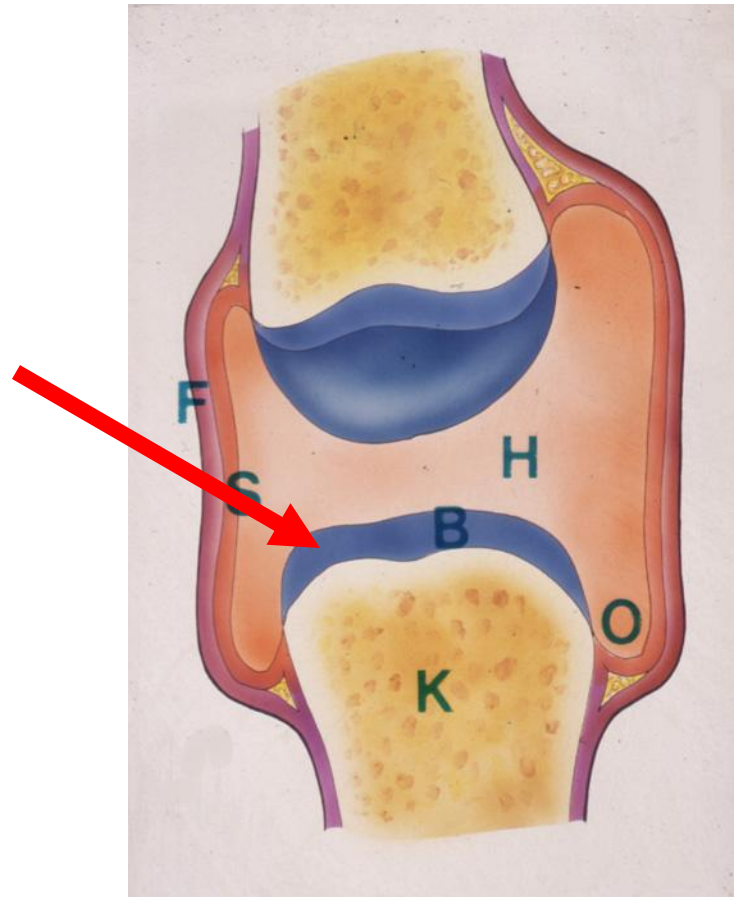
FIG. 4

- LEDHULE
 - spalte med ledvæske
 - begrænses af bindevævskapsel



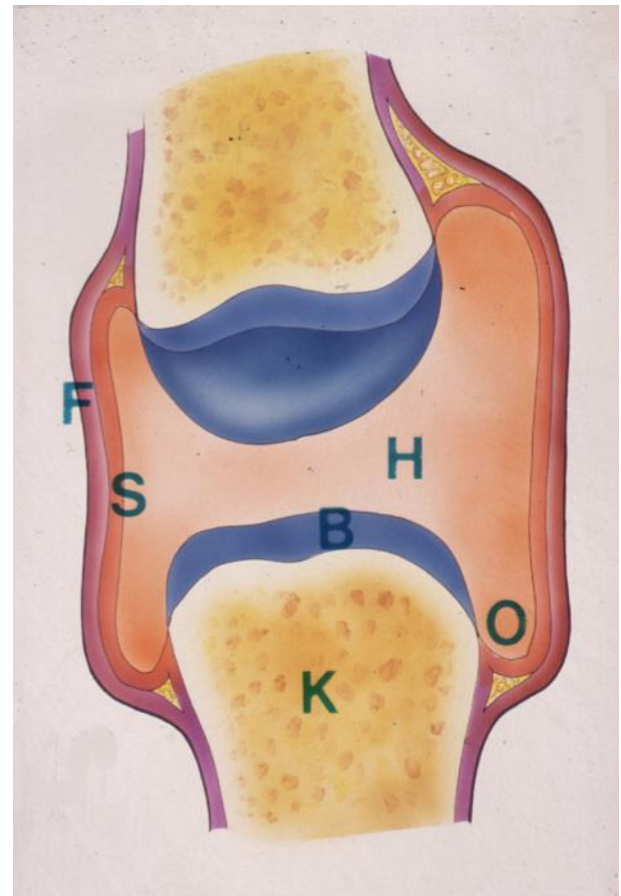
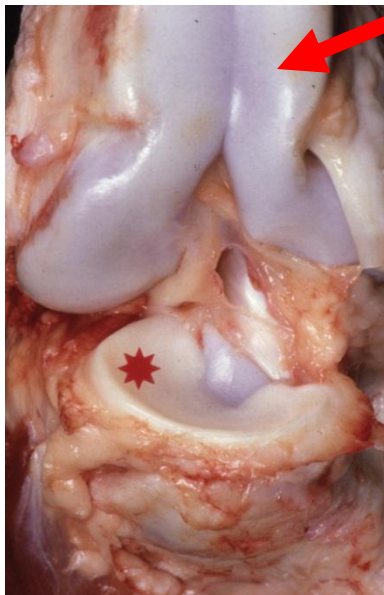
ÆGTE LED

- LEDBRUSK
 - gør knogleender glatte og eftergivelige
 - ernæres af ledvæsken



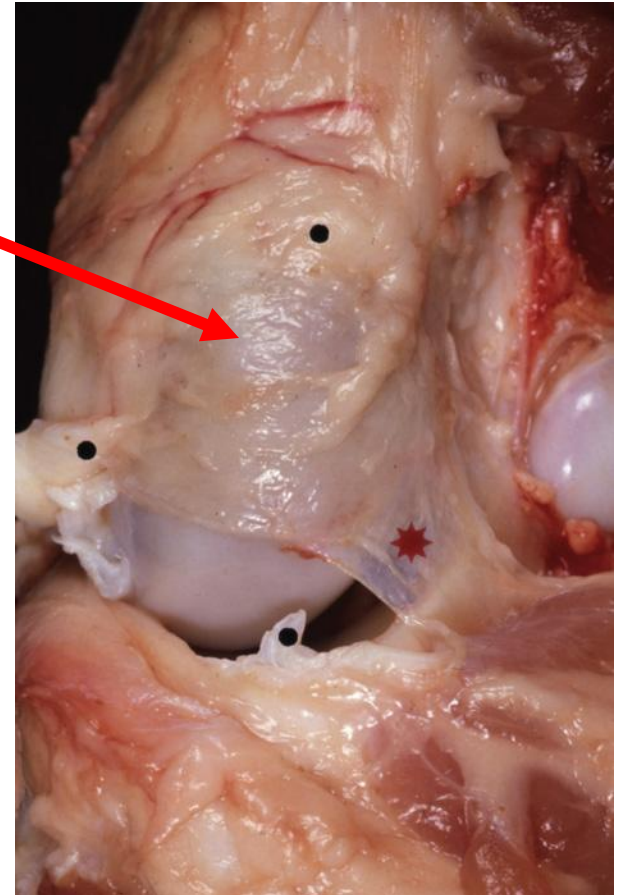
ÆGTE LED

- LEDBRUSK
 - her hyalinbrusk



ÆGTE LED

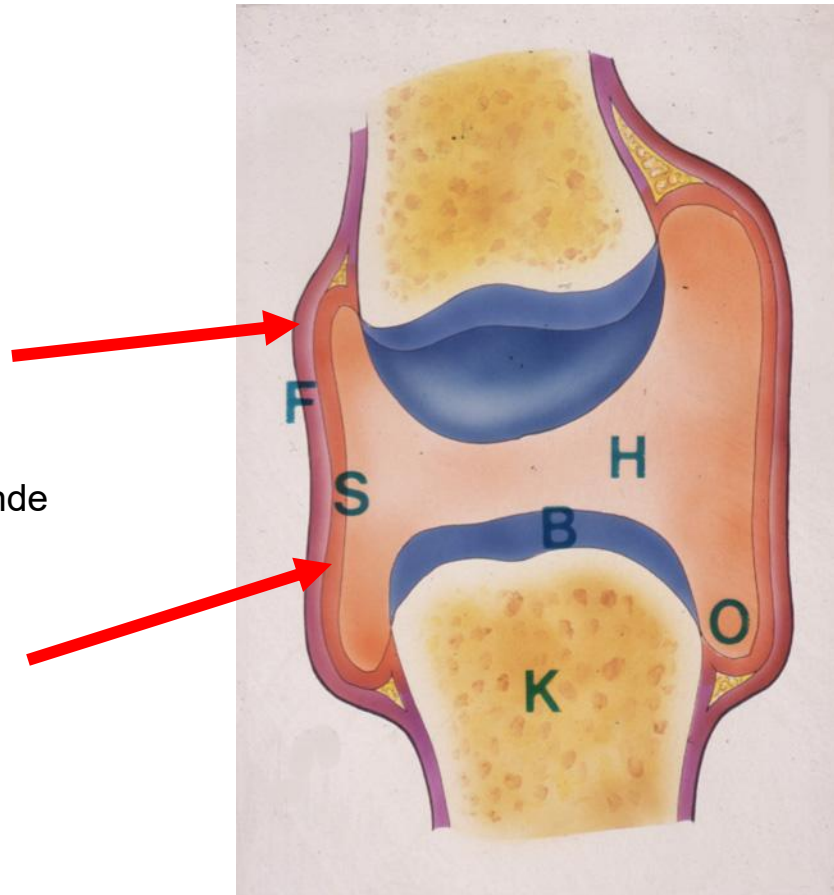
- LEDKAPSEL
 - holder knogleender sammen
 - aflukker ledhule



ÆGTE LED

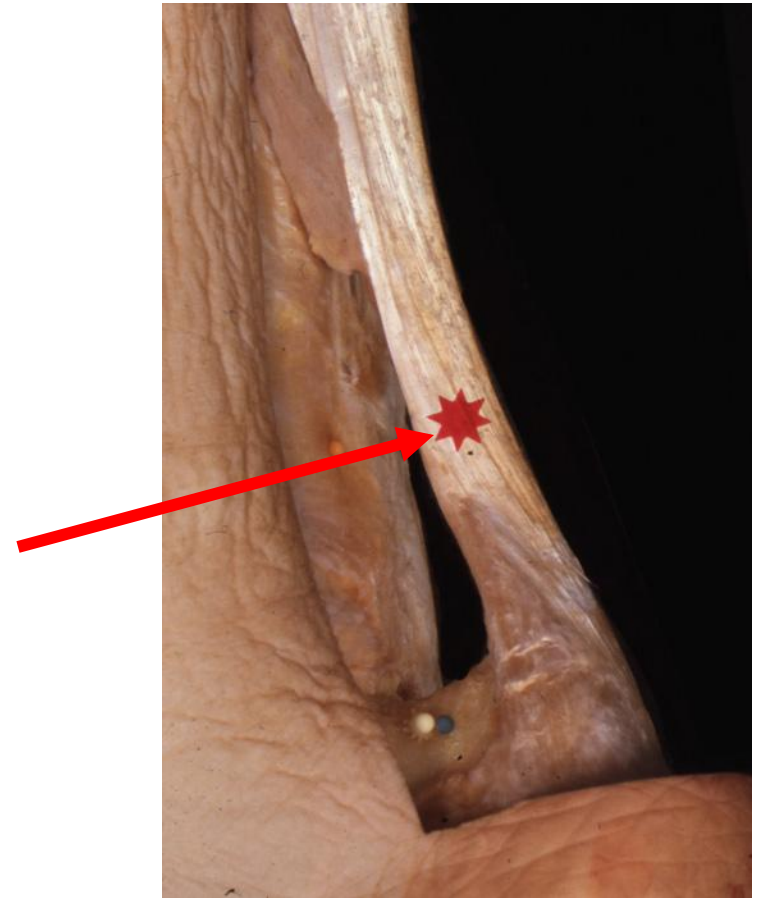
- LEDKAPSEL

- *membrana fibrosa*
 - fortsættelse af periost
 - fibrillært kollagent
organiseret bindevæv
- *membrana synovialis*
 - fortsættelse af bruskrande
 - flade bindevævsceller



ÆGTE LED

- LEDBÅND
 - kaldes også ligamenter
 - løber et stykke væk fra leddet



ÆGTE LED

- LEDBÅND

- fx ligamenter i kæbeleddet som er indvævet i en kapsel
- ledbånd løber et stykke væk fra leddet

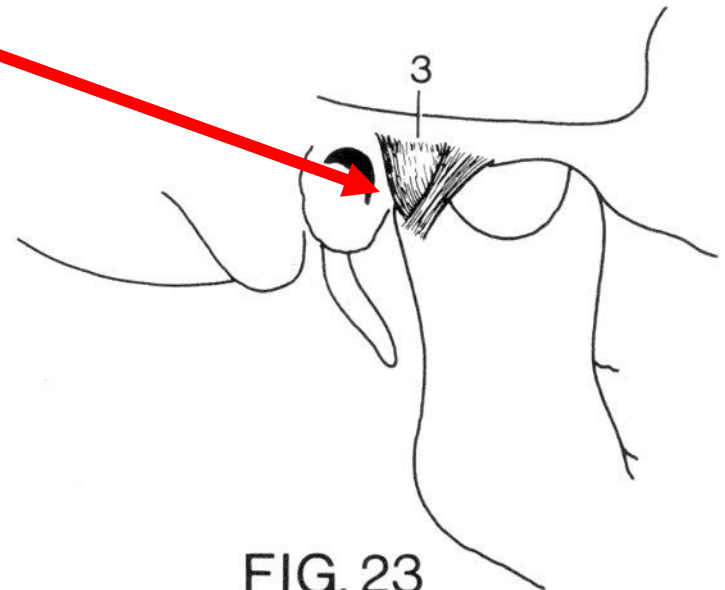


FIG. 23

ÆGTE LED

- LEDSKIVER

- ***discus articularis***
 - *deler ledhulen i to*
- ***menisci articularis***
 - *deler ufuldstændigt*
- altid fibrocartilago

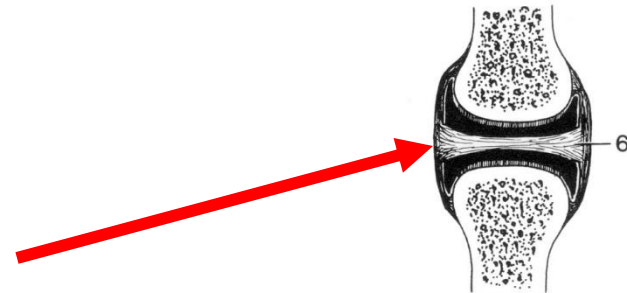


FIG. 5

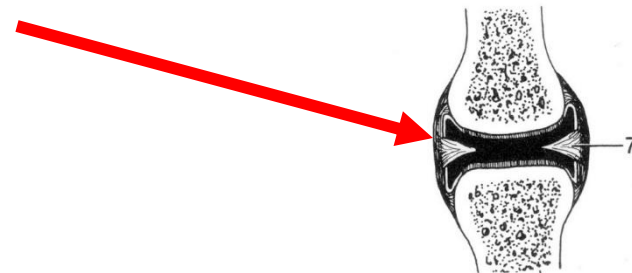


FIG. 6

INDDELING AF ÆGTE LED

- GLIDELED
- CYLINDERLED
 - Hængselled
 - Ledhovedet valseformet
 - Ledskål konkav
 - Drejeled / Tapled
- KUGLELED
 - Ledhovedet kugleformet

INDDELING AF ÆGTE LED

- GLIDELED

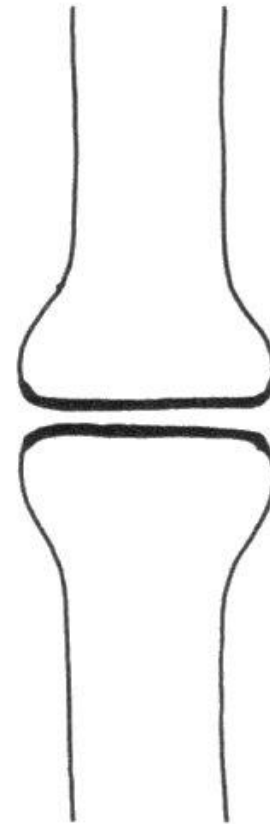


FIG. 7

INDDELING AF ÆGTE LED

- CYLINDERLED
 - Hængselled
 - Ledhovedet valseformet
 - Ledskål konkav

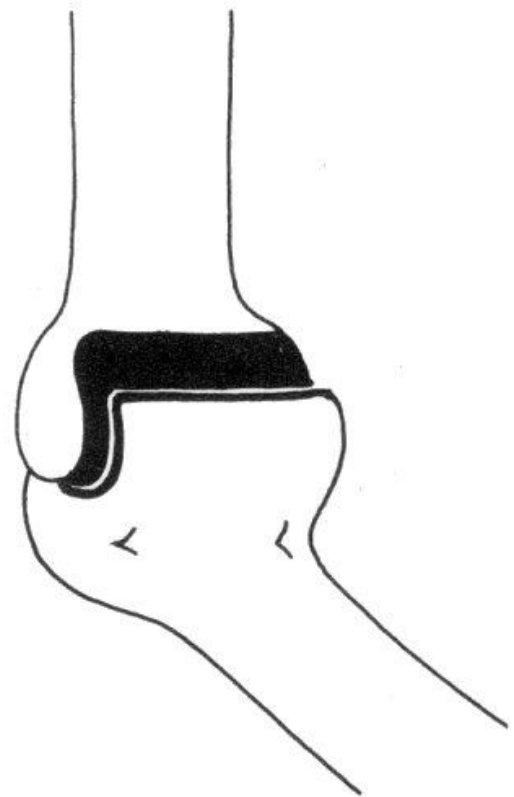


FIG. 8

INDDELING AF ÆGTE LED

- CYLINDERLED
 - Drejeled / Tapled

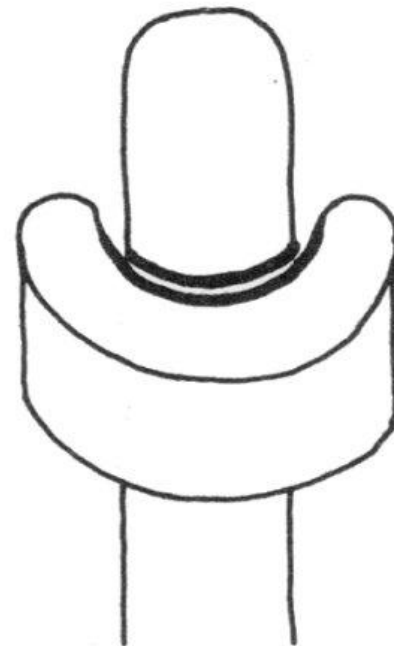


FIG. 9

INDDELING AF ÆGTE LED

- KUGLELED
 - Ledhovedet kugleformet

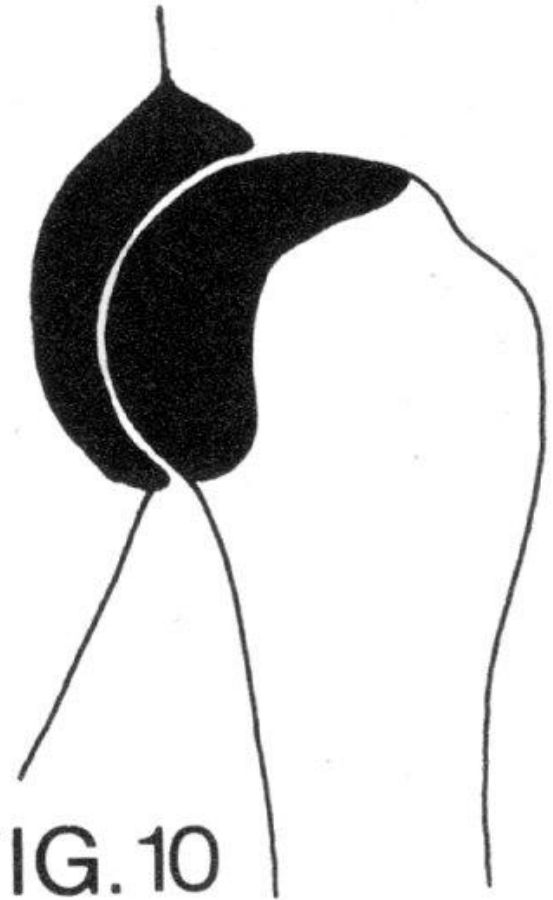


FIG. 10

LED

- HVIRVELSØJLENS LED
- BRYSTKASSENS LED
- BÆKKENETS LED
- OVEREKSTREMITETENS LED
- UNDEREKSTREMITETENS LED
- KRANIETS LED

LED

- HVIRVELSØJLENS LED
- BRYSTKASSENS LED
- BÆKKENETS LED
- OVEREKSTREMITETENS LED
- UNDEREKSTREMITETENS LED
- KRANIETS LED

HVIRVELSØJLENS LED

- Led mellem hvirvellegemer
- Led mellem hvirvelbuer
- Nakkeleddene

Led mellem hvirvellegemer

Uægte led:

- Synchondroser
- Syndesmoser

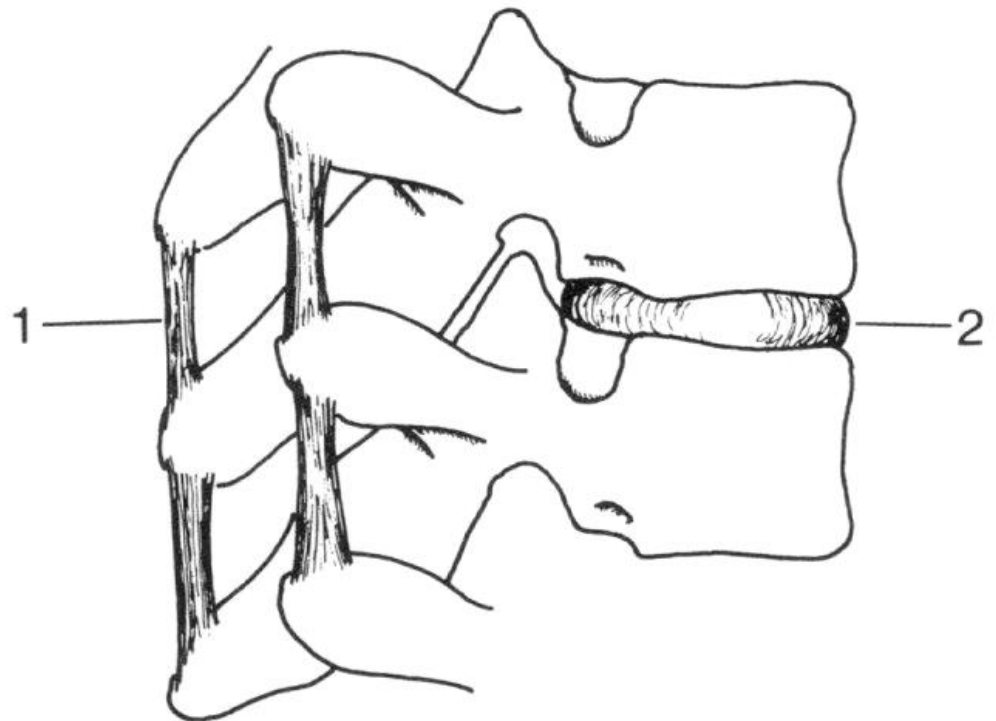
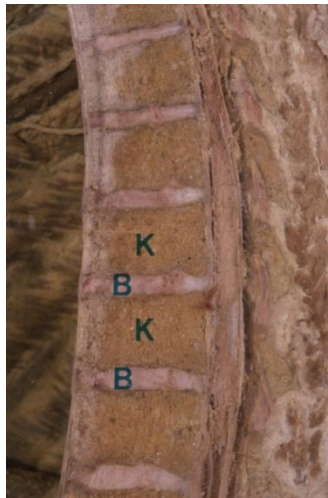


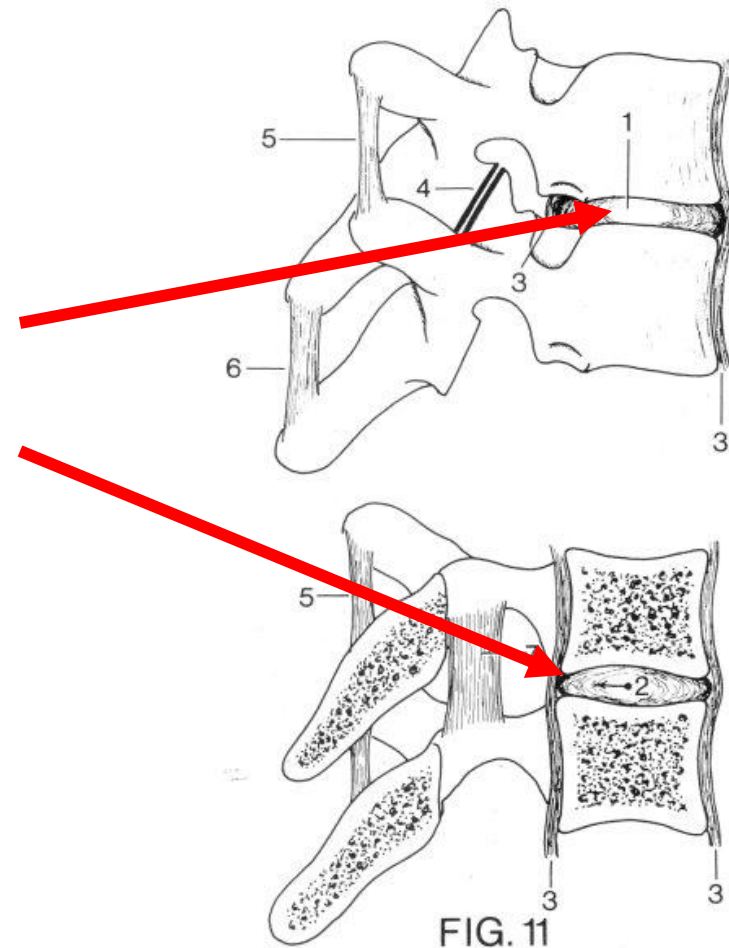
FIG. 1

Led mellem hvirvellegemer

- Synchronroser
 - Disci intervertebrales
 - nucleus pulposus (blød kerne)
 - anulus fibrosus (solid perifer del)
 - diskusprolaps

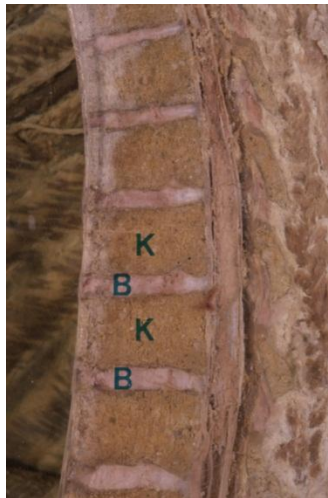


1005, AU

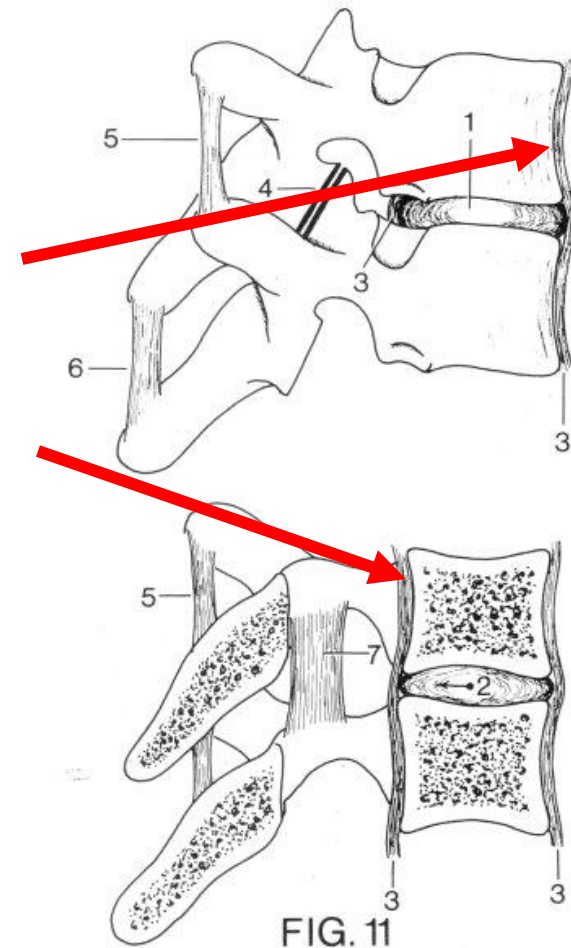


Led mellem hvirvellegemer

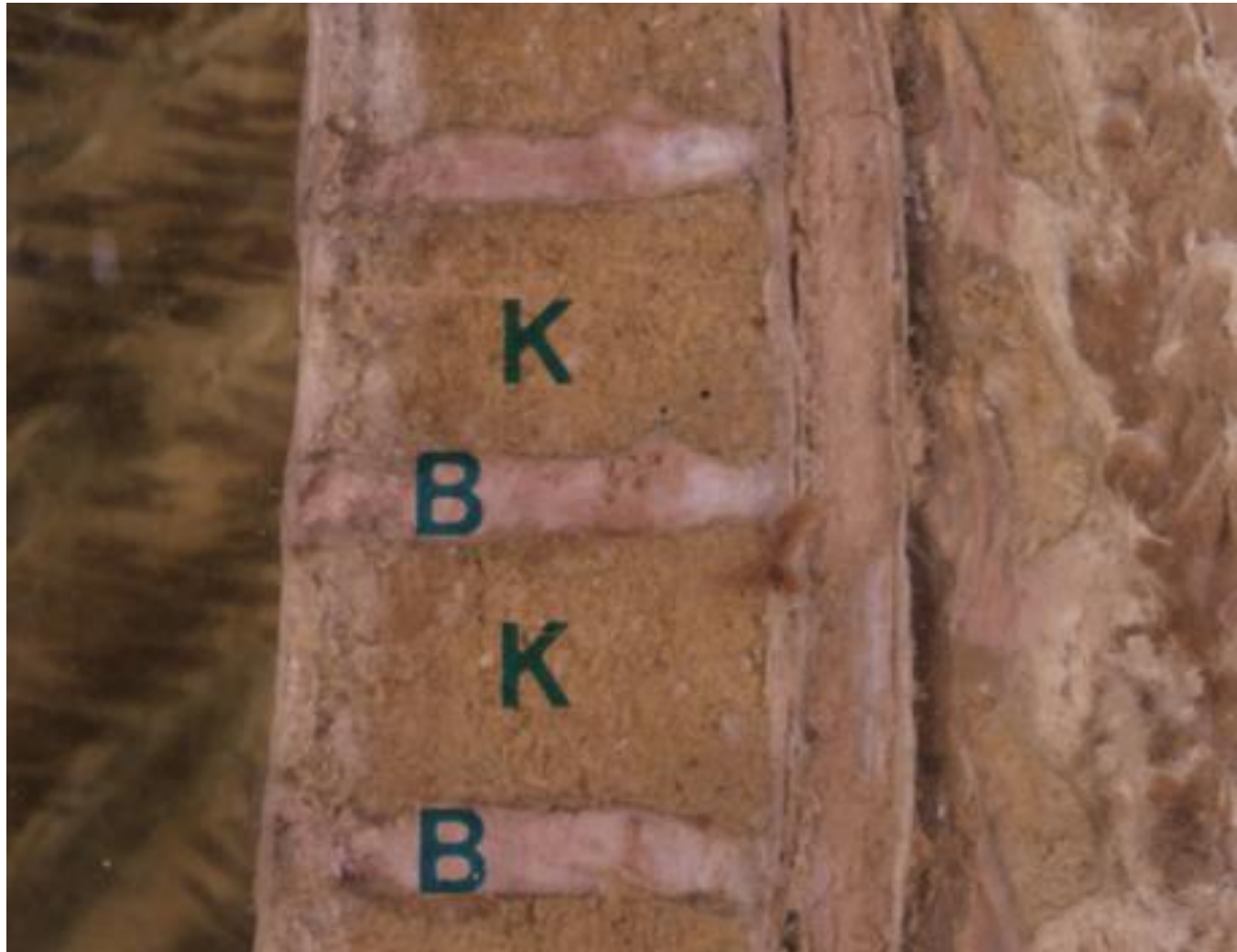
- Syndesmoser
 - Ligamentum longitudinale anterius
 - på forflade af hvirvellegeme
 - Ligamentum longitudinale posterius
 - på bagflade af hvirvellegeme



1005, AU



Snit gennem columna vertebralis



Led mellem hvirvelbuer

- Ægte Led
- Uægte led

Led mellem hvirvelbuer

- Ægte Led
 - mellem ledtappe
 - articulationes intervertebrales (“zygapophysialis”)

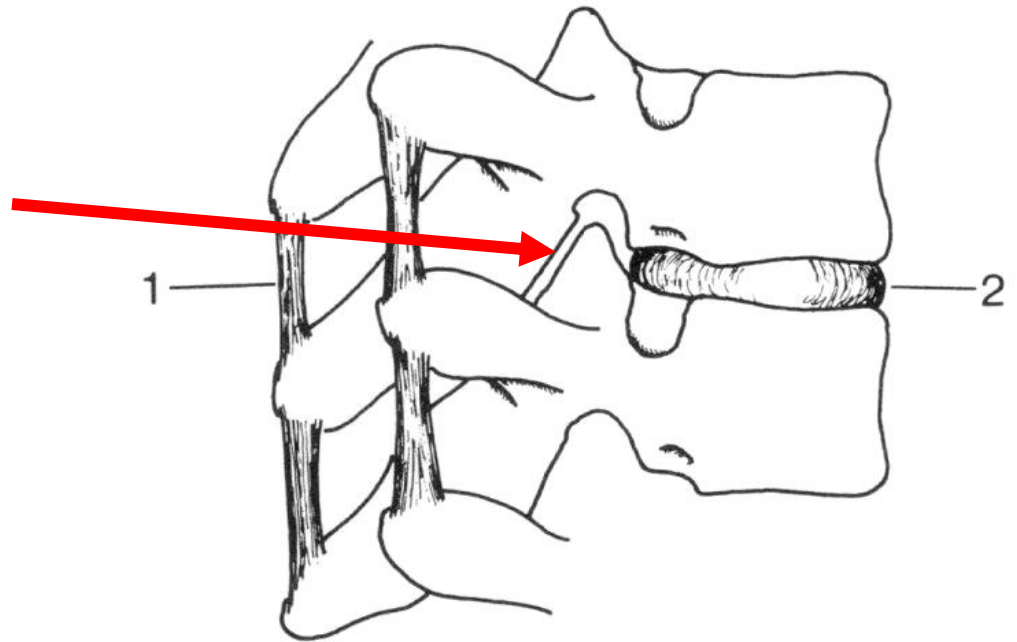


FIG. 1

Led mellem hvirvelbuer

- Uægte led
 - syndesmose
 - Fibrøse led
ml. tvær- og torntappe
 - Elastiske led
ml. hvirvelbuer

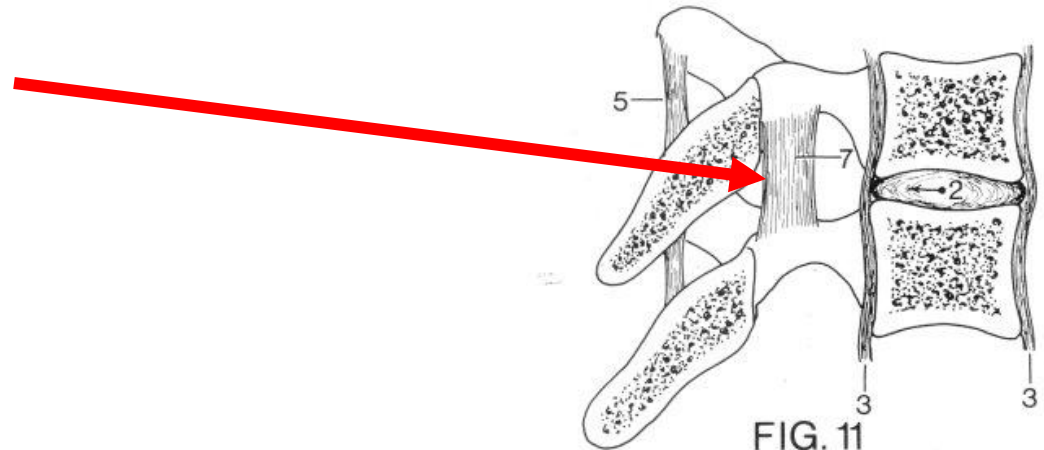
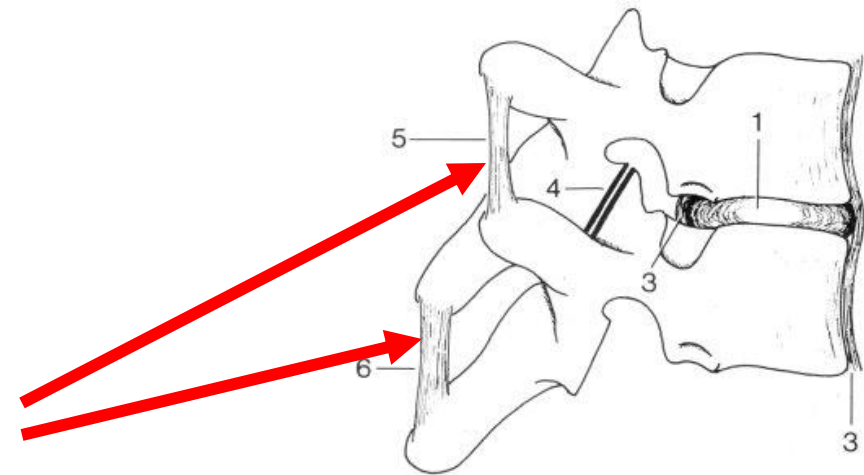


FIG. 11

Nakkeled

- **Articulationes atlantooccipitalis**

- ÆGTE LED

- laterale glideled
 - condyli occipitalis
 - ledtappe på atlas

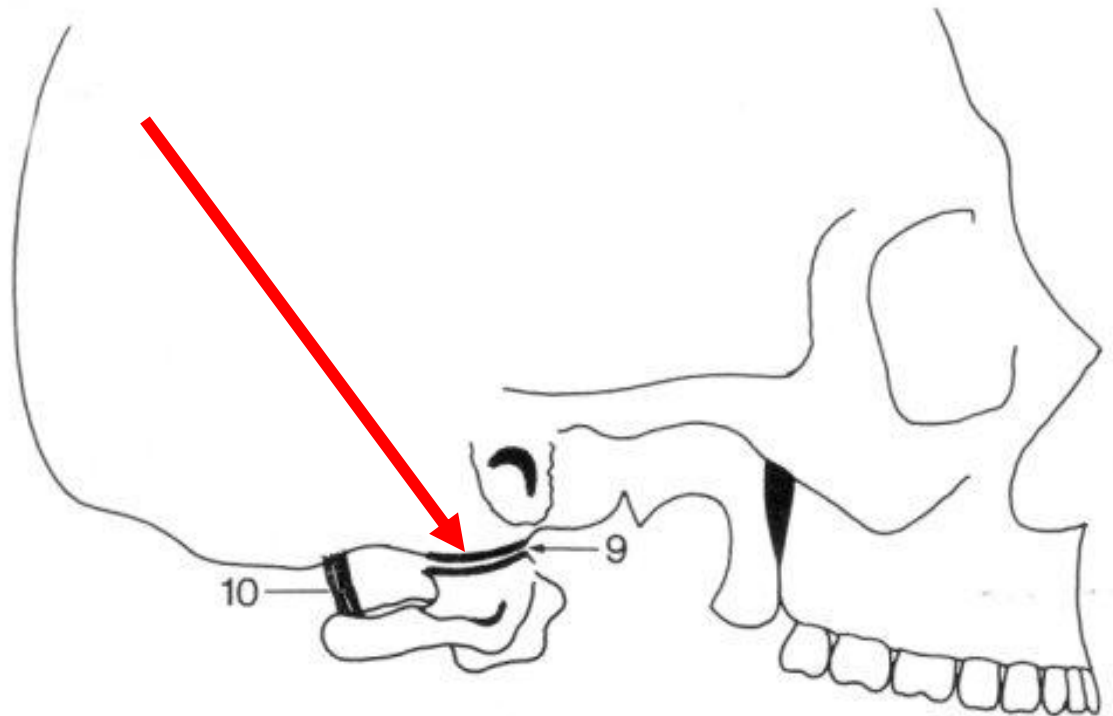


FIG. 13

Nakkeled

- **Articulationes atlantooccipitalis**
 - UÆGTE LED
 - Membraner for- og bagtil
 - mellem arcus og nakkebenet

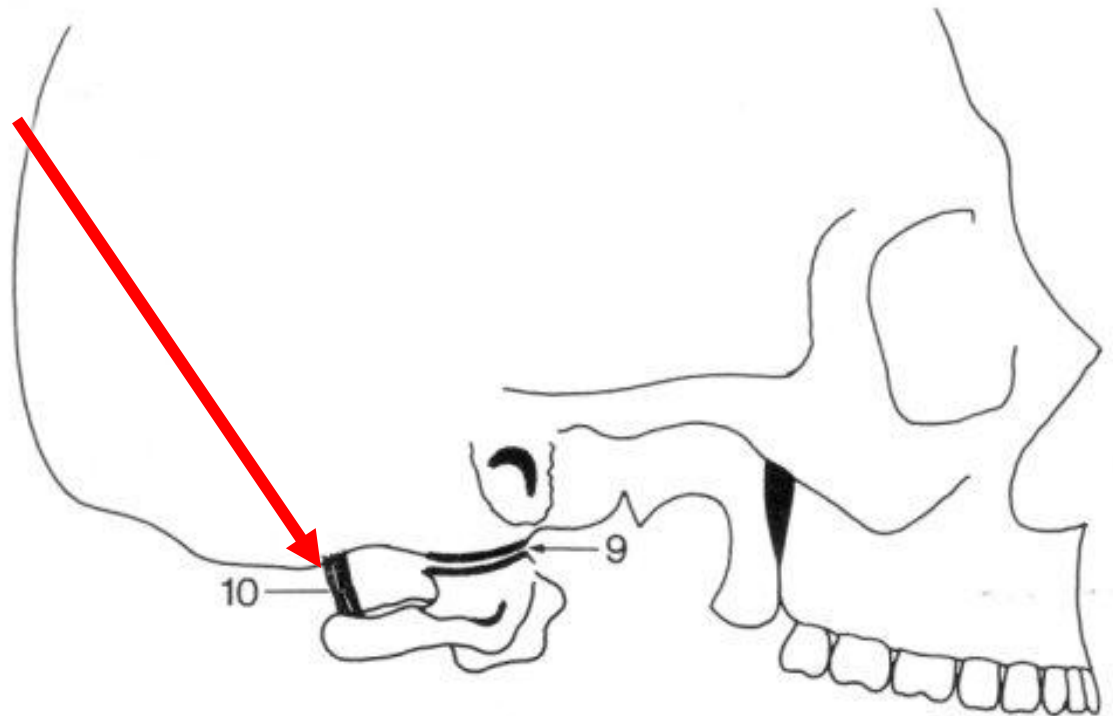


FIG. 13

Nakkeled

- **Articulationes atlantooccipitalis**
 - nikke- og vugge-bevægelser

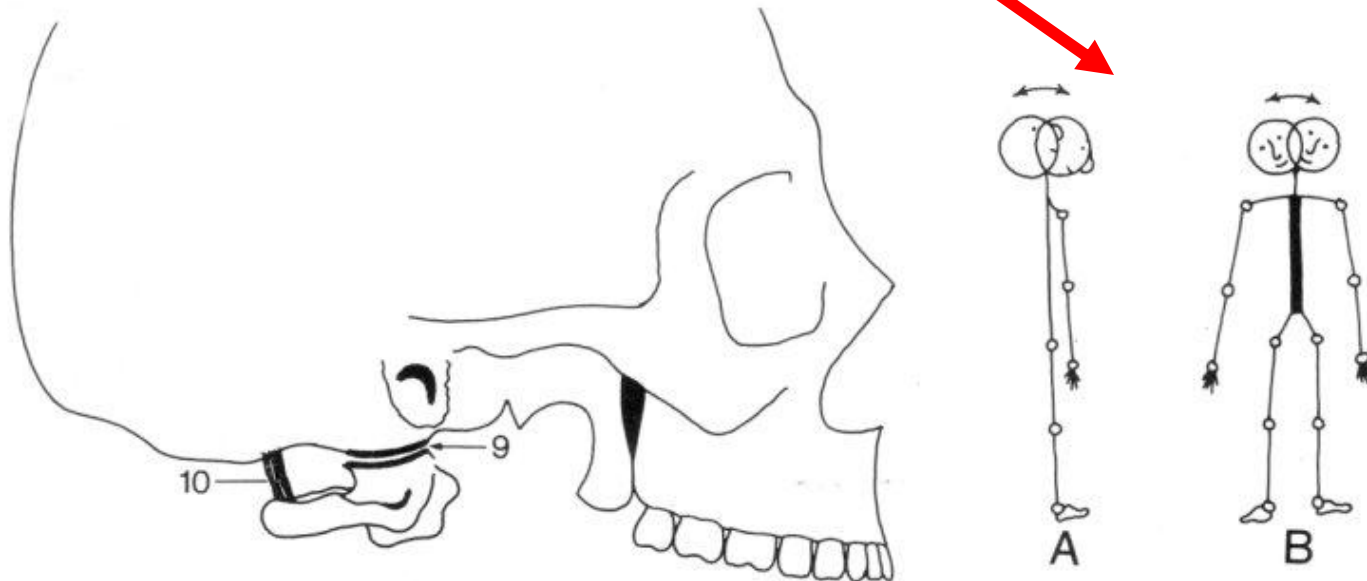


FIG. 13

Nakkeled

- **Articulationes atlantoaxialis**

ÆGTE LED

- tapled (drejeled)
- ligamentum transversum atlantis
- laterale ledtappe (glideled)

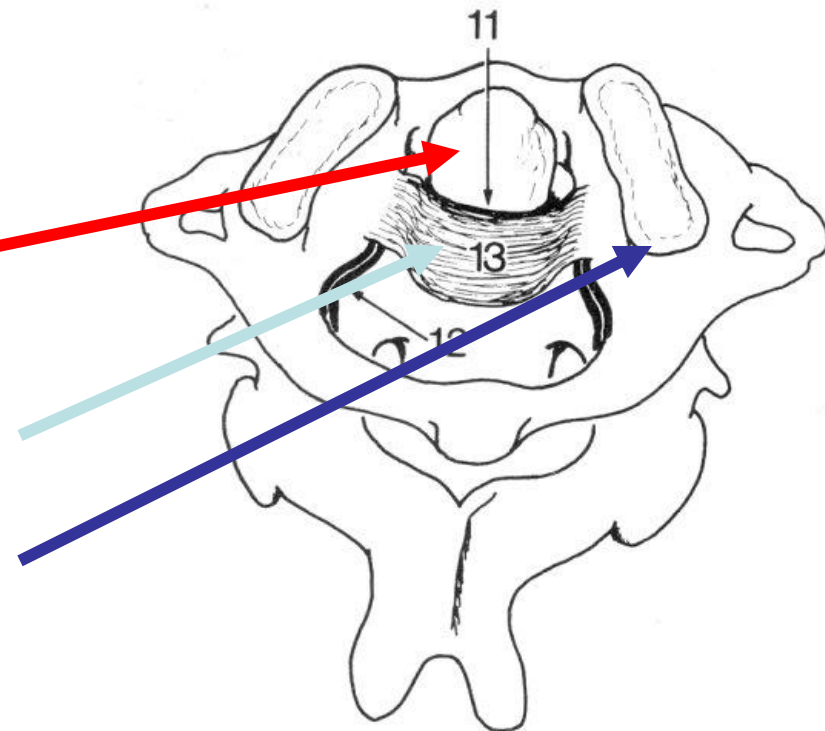


FIG. 14

Nakkeled

- Articulationes atlantoaxialis

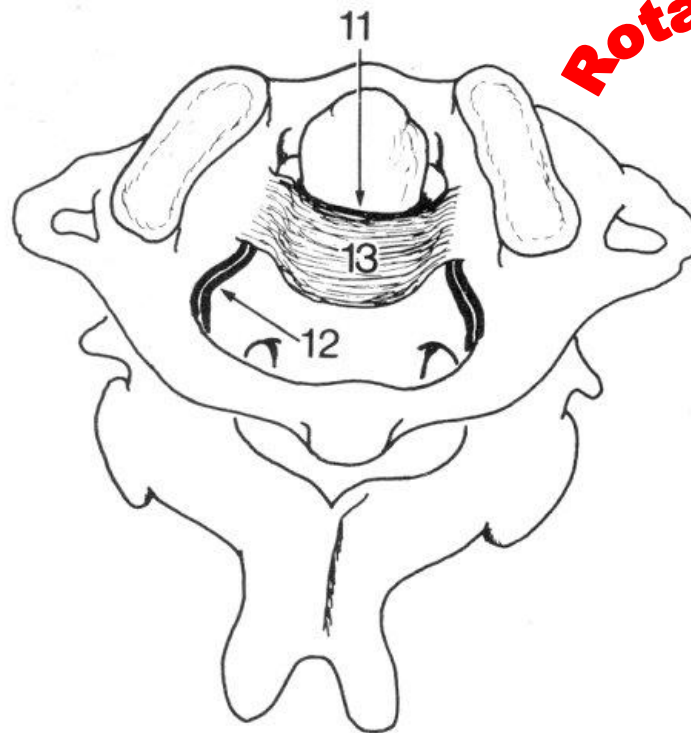
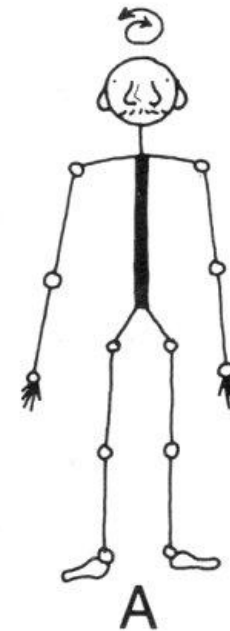


FIG. 14

Rotationsbevægelser



HOVEDETS LED

- Uægte led
 - suturer (fibrøse syndesmoser)
 - synchondroser
- Ægte led

HOVEDETS UÆGTE LED

SUTURER

- Kranssømmen
(sutura coronalis, 1)
- Pilsømmen
(sutura sagittalis, 2)
- Lambdasømmen
(sutura lambdoidea, 3)
- Skælsømmen
(sutura squamosa, 4)

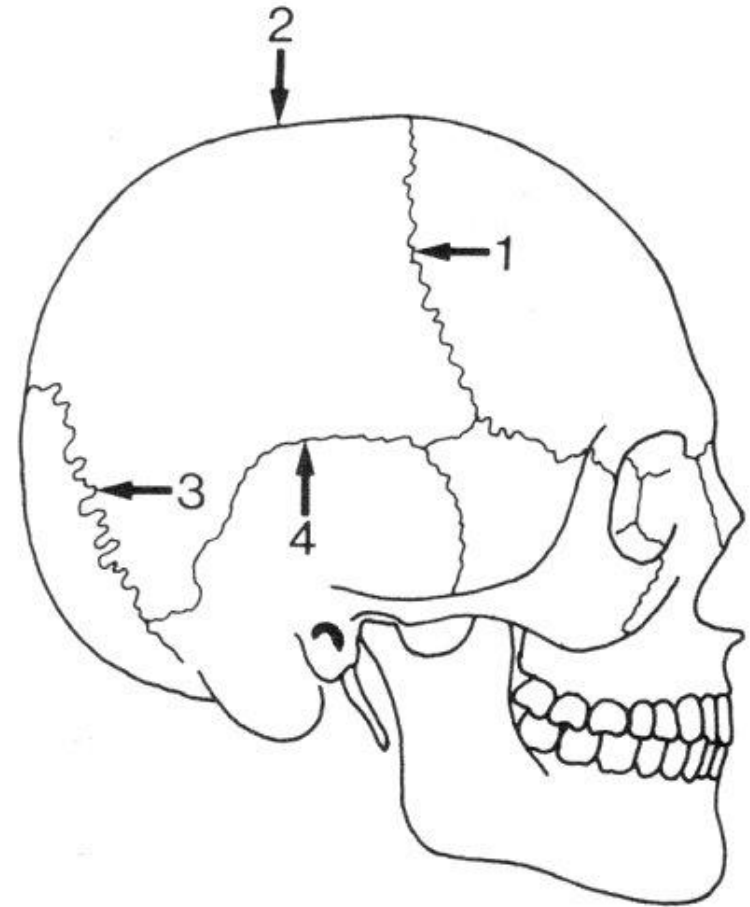


FIG. 21

HOVEDETS UÆGTE LED

SYNCHONDROSER

- Synchrondrosis sphenoccipitalis (clivus)

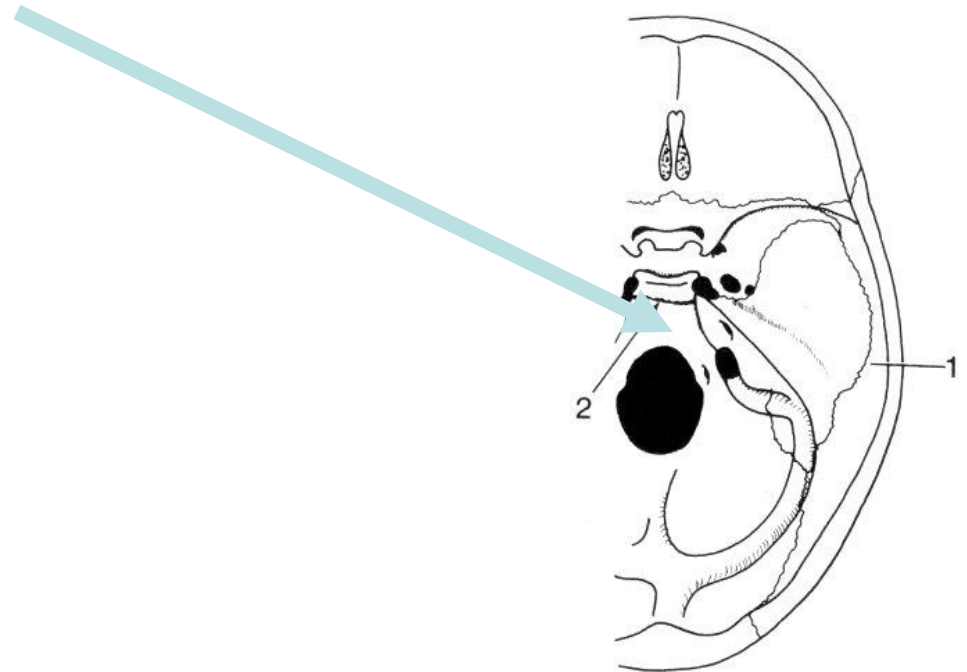


FIG. 22

HOVEDETS ÆGTE LED:

- Articulatio temporomandibularis

– Caput mandibulae

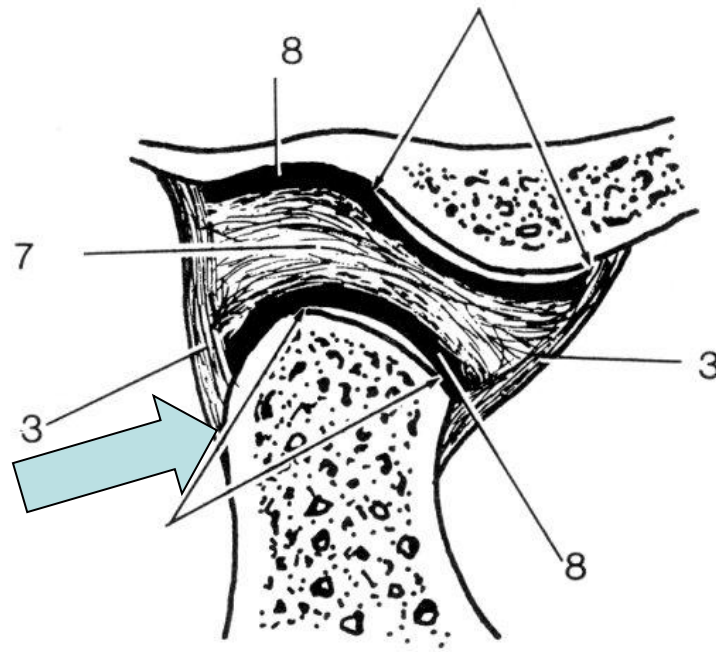
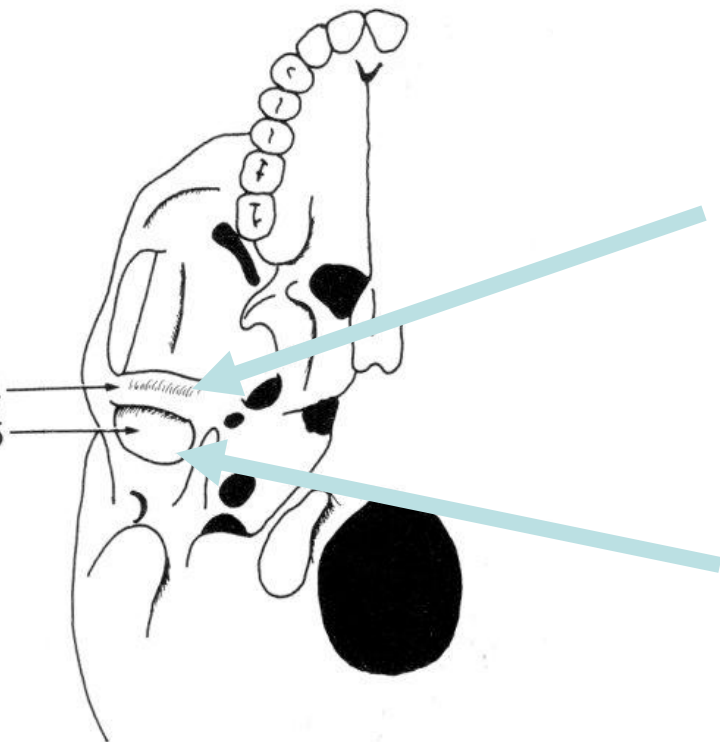


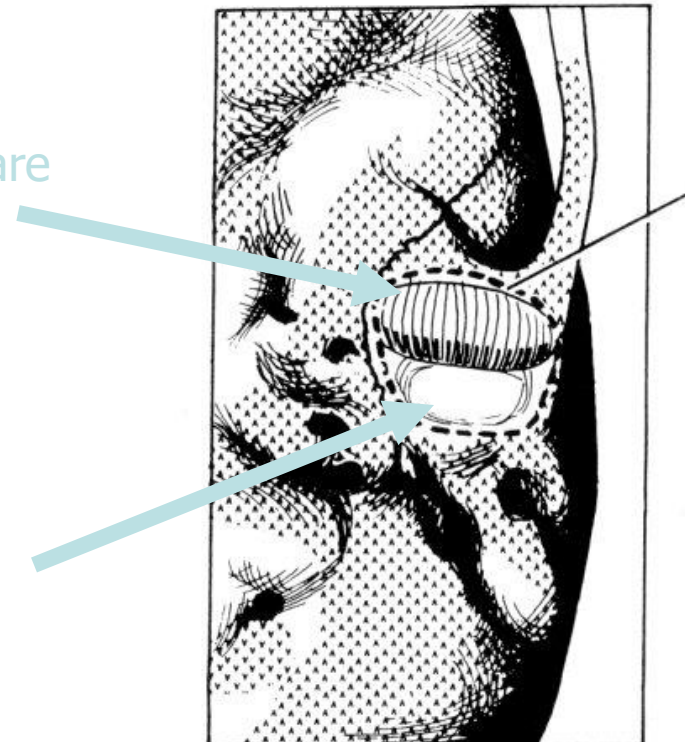
FIG.26

Articulatio temporomandibularis



Tuberculum articulare

Fossa mandibularis



Articulatio temporomandibularis

- Discus articularis
 - Oval skive
 - Fibrocartilago
- Ledkapsel

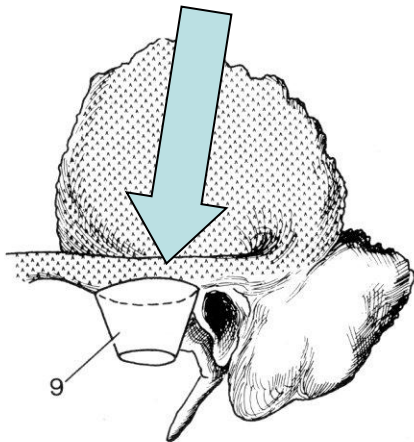


FIG.27

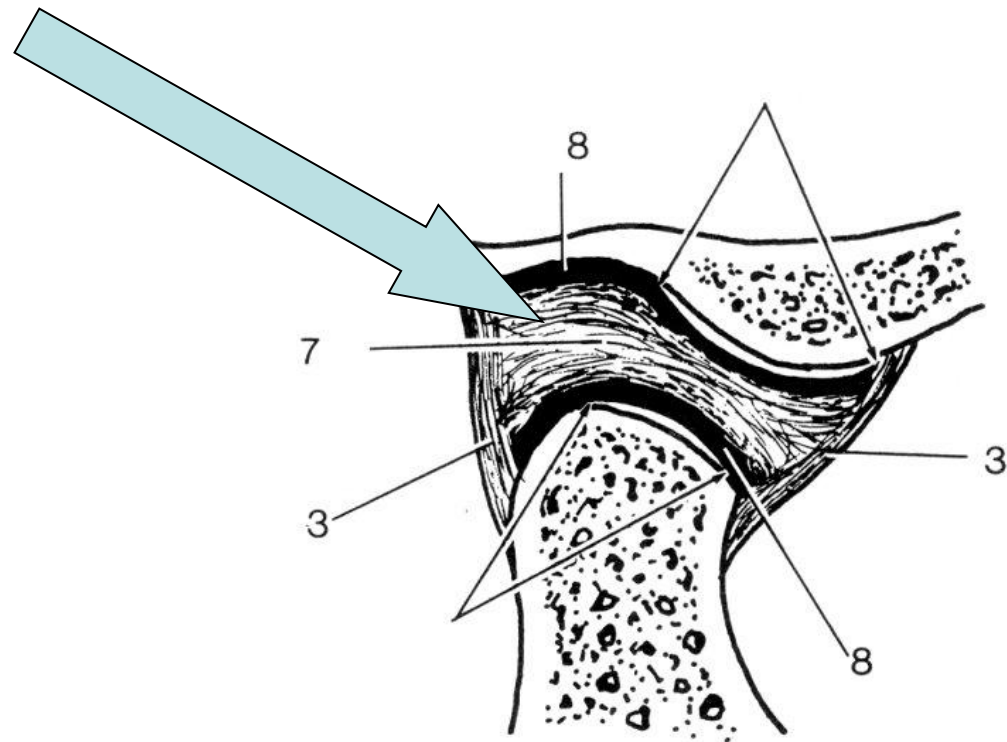


FIG.26

Articulatio temporomandibularis

- hængselbevægelser foregår i nedre ledkammer

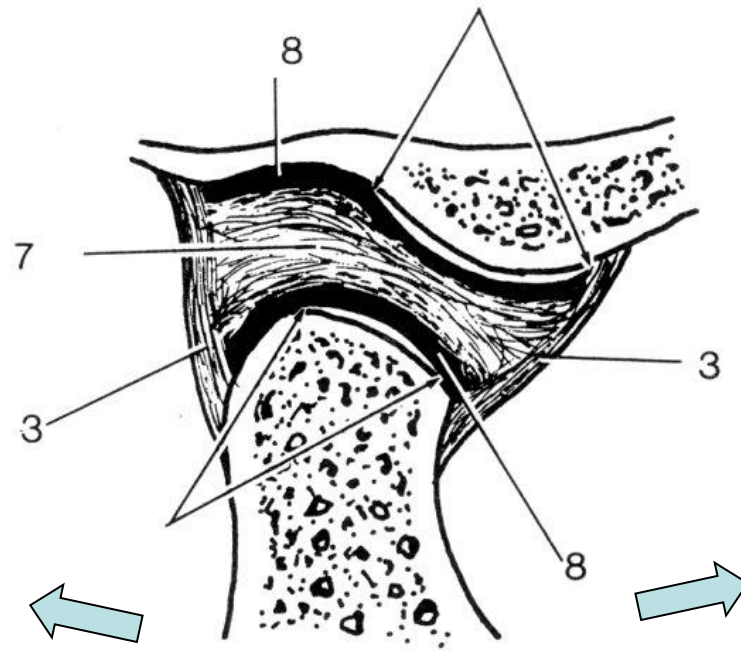


FIG.26

Articulatio temporomandibularis

- glidebevægelser foregår i øvre ledkammer

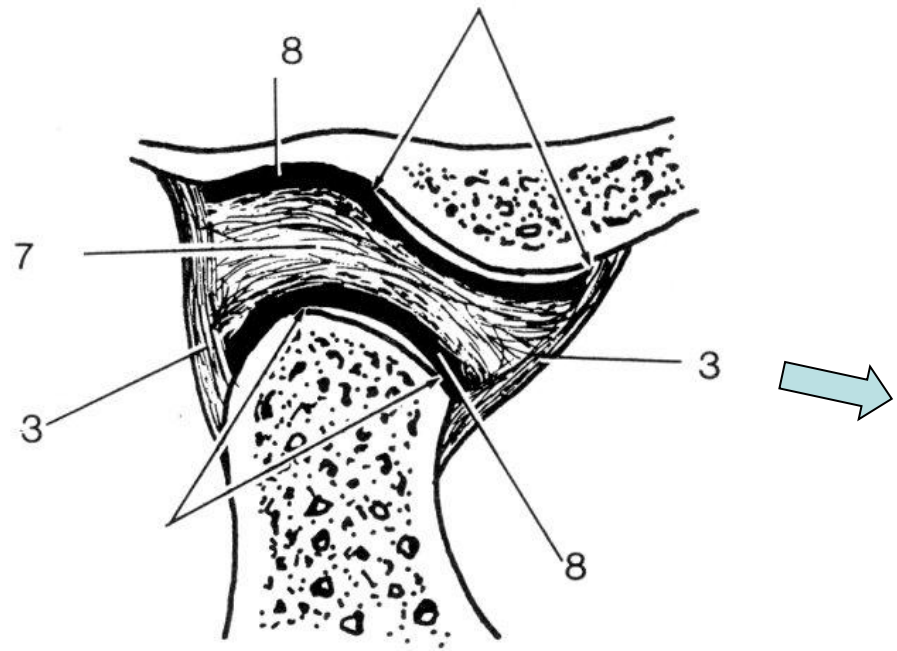


FIG.26

KÆBELED

Henrik Løvschall, TA
loev@dent.au.dk

Fig. 1

Aksens retning i caput mandibulae, forlængelserne danner stump vinkel ved forkanten af foramen magnum.



FIG. 1

Fig. 2

Ledbruskens udstrækning på caput mandibulae, pil: bageste grænse, på højeste parti.

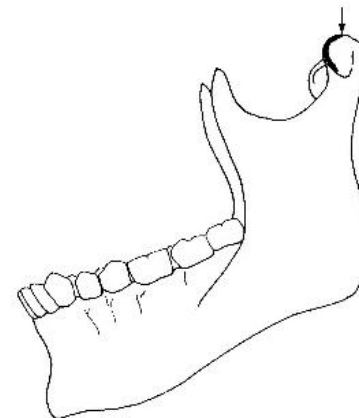


FIG. 2

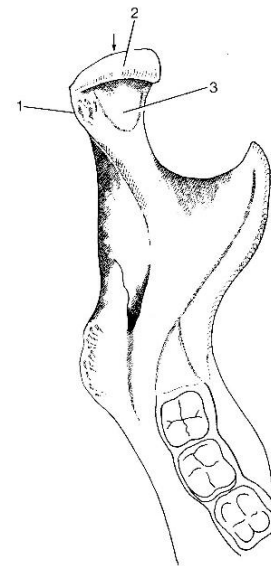


FIG. 3

Fig. 3

Venstre processus condylaris set forfra,

1: crista colli mandibulae,

2: caput mandibulae, bruskbeklædte flade,

3: fovea pterygoidea på forfladen af collum mandibulae,

pil: bageste grænse for ledbrusken.

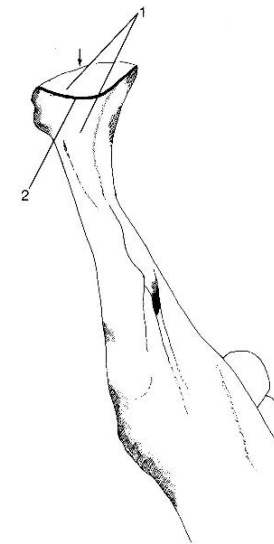


FIG. 4

Fig. 4

Venstre processus condylaris set bagfra,

1: bagfladen af caput og collum mandibulae set bagfra,

2: tilhæftningssted for membrana fibrosa,

pil: bageste (øvre) grænse for ledbrusken.

Fig. 5

Venstre os temporale med skematisk tegnet ledkapsel,

1: membrana fibrosa,

2: processus retroarticularis = postglenoidalis.

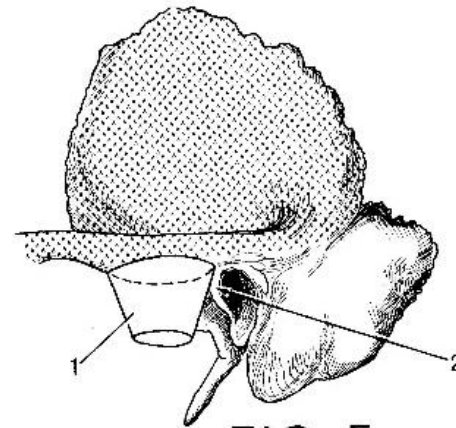


FIG. 5

Fig. 6

Ledkapslens tilhæftning på os temporale,

1: membrana fibrosa hæfter sig langs stiptet linie,

2: processus retroarticularis,

3: fissura petrotympanica (lige bag tilhæftningen),

4: sutura sphenosquamosa,

5: tuberculum articulare,

6: fossa mandibularis.

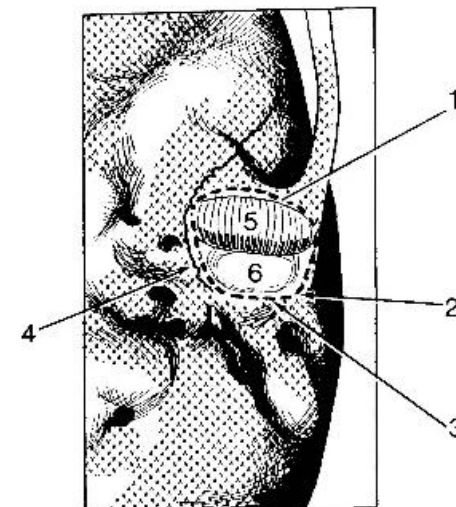


FIG. 6

Fig. 7

Sagittalsnit gennem kæbeled,

3: ledkapsel fortil og bagtil,

7: **discus articularis**, består af flere zoner i varierende tykkelse og med varierende indhold af fibrøst bindevæv og fibrocartilago. Som helhed er det fibrøse væv dominerende.

8: ledhule, øvre og nedre del (ledkammer),

a: ledbrusk på tuberculum articulare,

b: ledbrusk på caput mandibulae.

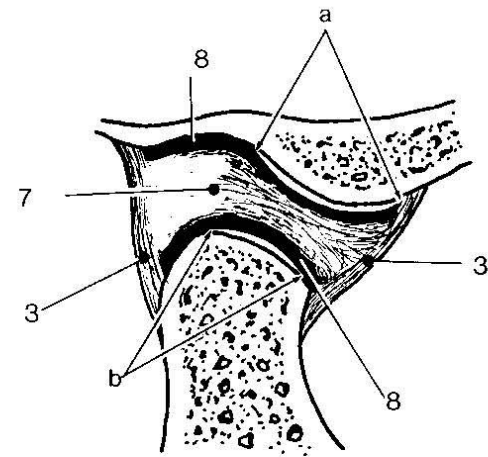


FIG. 7

Fig. 8

Sagittalsnit gennem kæbeled. Bagtil opdeles discus i to laminae. På figuren ses discus articularis i zoner og laminae:

1: tilhæftning af øvre lamina sammen med ledkapsel (3) på os temporale (på basis cranii foran fissure petrotympanica),

2: tilhæftning af nedre lamina sammen med ledkapsel (3) på mandibula,

3: ledkapsel, fortil og bagtil,

5: mellem de to laminae og ledkapslen er der et lille venenet i bindevæv

7: inddeling af discus articularis,

8: ledhuler, øvre og nedre (ledkammer),

9: fossa mandibularis,

10: m. pterygoideus lateralis' tilhæftning i ledkapslen.

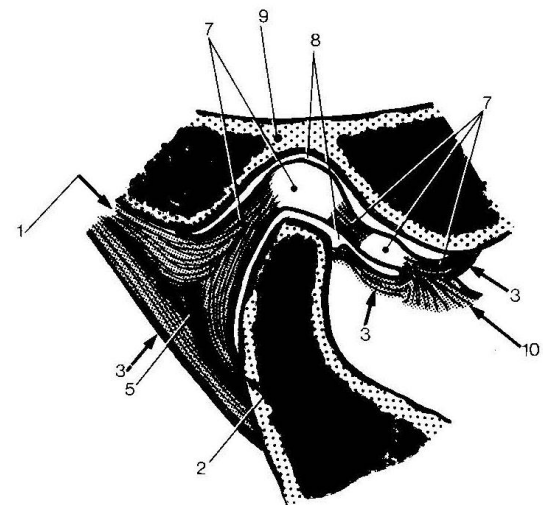


FIG. 8

Fig. 9

Højre kæbeled set lateralt fra,
1: tuberculum articulare,
2: ligamentum temporomandibulare,
3: ledkapsel,
4: meatus acusticus externus,
5: pars tympanica, bund i (4),
6: processus mastoideus,
7: processus styloideus,
8: ligamentum stylomandibulare.

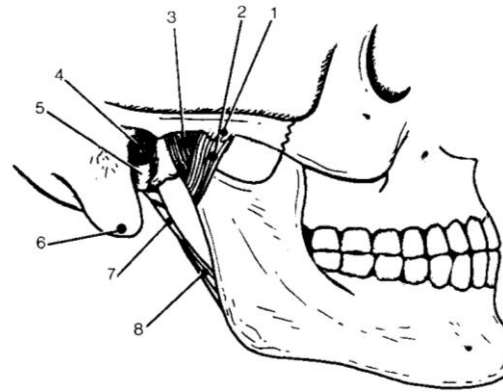


FIG. 9

Fig. 10

Højre kæbeled set medially fra,
1: ligamentum sphenomandibulare,
2: ligamentum stylomandibulare,
3: ledkapsel,
4: ossis sphenoidalis,
5: processus styloideus,
6: lingula mandibulae.

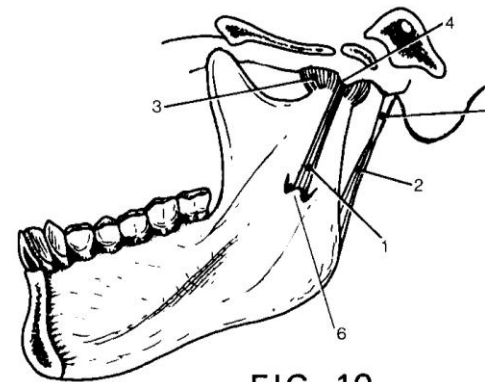
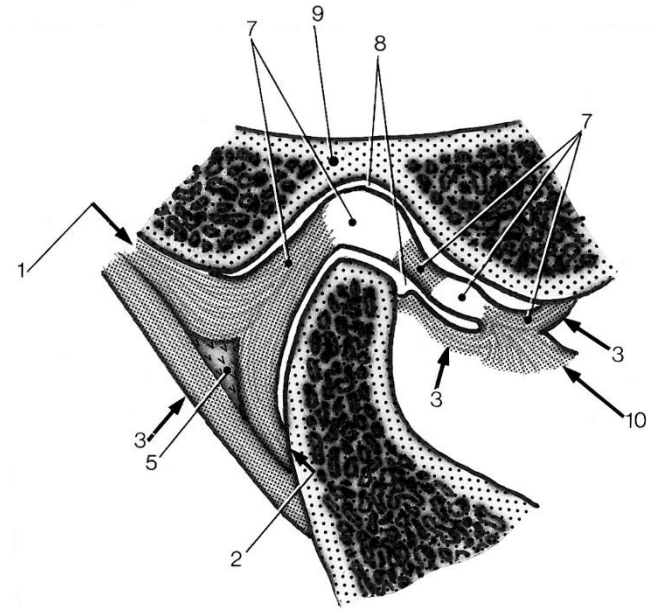
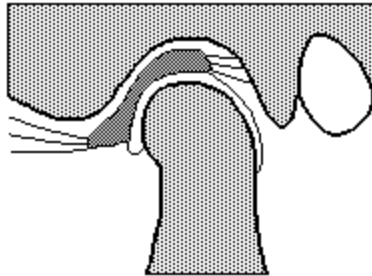


FIG. 10



Articulatio temporomandibularis



Links

TMJ Muscles of mastication (youtube)

- [TMJ Muscles of mastication.mp4](#)
- https://youtu.be/_TJd7IKC064

Peerfeedback 2 og 2 - evt 3

Led

Hvad er

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Mentimeter

